

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)
2. (Previously Presented) The method of claim 9 wherein said dynamically adapting the property further includes dynamically adapting a region of support of either one or both of the filterings based on the set of criteria.
3. (Previously Presented) The method of claim 9 wherein said dynamically adapting the property further includes dynamically increasing filter strength of either or both of the filterings if said difference is within said range.
4. (Previously Presented) The method of claim 9 wherein said filtering the high frequency components includes filtering these components from at least one of a selectable frame, macroblock, and block granularity.
5. (Previously Presented) The method of claim 9 wherein said dynamically adapting the property of either or both of the filterings based on the set of criteria further includes dynamically adapting based on at least one of quantization level, quantization history, motion velocity, changes in scene, number of consecutive frames skipped, and buffer fullness.
6. (Original) The method of claim 5, further comprising using a plurality of weighting factors for at least some of the criteria in the set.

7. (Previously Presented) The method of claim 9 wherein said filtering at least some high frequency components includes low pass filtering the high frequency components.

8. (Previously Presented) The method of claim 9 wherein said filtering texture information within object boundaries includes texture smoothing using a non-linear filter.

9. (Previously Presented) A method to process video data dynamically, the method comprising:

adaptively filtering at least some high frequency components from video frames;
adaptively filtering texture information within object boundaries in an image in the video frames;

encoding these filtered video frames; and

dynamically adapting a property of either or both of the filterings based on a set of criteria, including feedback information from the encoding,

wherein dynamically adapting the property of either or both of the filterings includes determining whether to increase filter strength based on whether a difference between old and new filter strengths is within a range.

10. (Original) The method of claim 9, further comprising using a lookup table to determine whether the difference is within the range.

11. (Previously Presented) The method of claim 9, further comprising performing additional processing to the video frames prior to encoding.

12. (Previously Presented) The method of claim 9, further comprising sharing at least some data between filtering processes respectively associated with multiple unique output video streams that are generated from a single input video stream during a single encoding session.

13. (Canceled)

14. (Previously Presented) The method of claim 17 wherein said adaptively changing the characteristic of the filtering includes reducing strength of the filtering as a human visual system adjusts to the image changes.

15. (Previously Presented) The method of claim 17 wherein said adaptively changing the characteristic of either one or both the filtering and the smoothing includes changing the characteristic based on at least one of quantization level, quantization history, motion velocity, changes in scene, number of consecutive frames skipped, and buffer fullness.

16. (Previously Presented) The method of claim 17 wherein said adaptively changing the characteristic includes adaptively changing a region of support of either one or both of the filtering and smoothing in response to the set of criteria.

17. (Previously Presented) A method to process video data, the method comprising:
 filtering high frequency information from at least some video frames having abrupt image changes;
 smoothing texture information within object boundaries of an image in the video frames;
 adaptively changing, if necessary, a characteristic of either one or both of the filtering and smoothing in response to a set of criteria; and
 maintaining a level of either one or both of the filtering and smoothing if a difference in level changes exceeds a range.

18. (Previously Presented) The method of claim 17 wherein either one or both of the filtering and smoothing is performed at a selectable one of a frame, block, and macroblock granularity.

19. (Previously Presented) The method of claim 17, further comprising adjusting influence of the criteria in the set using weighting factors.

20. (Previously Presented) The method of claim 17, further comprising:
performing additional processing of the video frames; and
encoding the video frames having the high frequency information filtered therefrom and having the smoothed texture information.

21. (Original) The method of claim 20, further comprising using feedback information from the encoding to adjust the characteristic of at least one of the filtering and smoothing.

22. (Previously Presented) An article of manufacture, comprising:
a computer-readable medium having computer-executable instructions stored thereon to cause a computer to process video data dynamically, by:
filtering high frequency information from at least some video frames having abrupt image changes;
smoothing texture information within object boundaries of an image in the video frames;
adaptively changing a characteristic, if necessary, of either one or both of the filtering and smoothing in response to a set of criteria; and
maintaining a level of either one or both of the filtering and smoothing if a difference in level changes exceeds a range.

23. (Currently Amended) The article of manufacture of claim 22 wherein the computer-executable instructions to cause the computer to process video data by adaptively changing the characteristic of the filtering include computer-executable instructions to cause the computer to process video data by reducing strength of the filtering as a human visual system adjusts to the ~~image~~ abrupt image changes.

24. (Previously Presented) The article of manufacture of claim 22 wherein the computer-executable instructions to cause the computer to process video data by adaptively changing the characteristic of either one or both the filtering and the smoothing include computer-executable instructions to cause the computer to process video data by changing the characteristic based on at least one of quantization level, quantization history, motion velocity, changes in scene, number of consecutive frames skipped, and buffer fullness.

25. (Previously Presented) The article of manufacture of claim 22 wherein the computer-executable instructions to cause the processor to process video data by adaptively changing the characteristic include computer-executable instructions to cause the computer to process video data by adaptively changing a region of support of either one or both of the filtering and smoothing in response to the set of criteria.

26. (Previously Presented) The article of manufacture of claim 22 wherein the computer-readable medium further includes computer-executable instructions stored thereon to cause the processor to process video data, by:

selecting one of a frame, block, and macroblock granularity to perform either one or both of the filtering and smoothing; and
adjusting influence of the criteria in the set using weighting factors.

27. (Previously Presented) The article of manufacture of claim 22 wherein the computer-readable medium further includes computer-executable instructions stored thereon to cause the computer to process video data by encoding the filtered and smoothed video frames and using information from the encoding to adjust the characteristic.

28. (Previously Presented) A system for processing video data dynamically, the system comprising:

a means for adaptively filtering at least some high frequency components from video frames;

a means for adaptively filtering texture information within object boundaries in an image in the video frames;

a means for encoding these filtered video frames; and

a means for dynamically adapting a property of either or both of the filterings based on a set of criteria, including feedback information from the encoding, and for determining whether to increase filtering strength based on whether a difference between old and new filtering strengths is within a range.

29. (Previously Presented) The system of claim 28 wherein the means for dynamically adapting the property performs at least one of adapting a strength and dynamically adapting a region of support, of either one or both of the filterings based on the set of criteria.

30. (Previously Presented) The system of claim 28 wherein the means for filtering the high frequency components filters these components from at least one of a selectable frame, macroblock, and block granularity.

31. (Previously Presented) The system of claim 28, further comprising:
a means for using a plurality of weighting factors for at least some of the criteria in the set;

a means for performing additional processing to the video frames prior to encoding; and

a means for receiving input video frames and providing output video frames to client devices.

32. (Canceled)

33. (Previously Presented) The apparatus of claim 37 wherein the processor is adapted dynamically change a filter strength of at least one of the filters according to behavior of a human visual system in response to image changes.

34. (Previously Presented) The apparatus of claim 37 wherein the first filter includes a low pass filter, and wherein the second filter includes a non-linear filter.

35. (Currently Amended) The apparatus of claim 37 wherein at least one of the first and the second filters has a programmable region of support.

36. (Previously Presented) The apparatus of claim 35 wherein the region of support is adapted to be dynamically changed by the processor based on the set of criteria.

37. (Currently Amended) An apparatus to process video data dynamically, the apparatus comprising:

a first filter to filter at least some high frequency components from video frames;
a second filter to smooth texture information within object boundaries in an image in the video frames;

an encoder coupled to the first and second filters to encode these filtered video frames; and

a processor, coupled to the encoder and to the filters, adapted to dynamically adapt a property of either or both of the filters based on a set of criteria, including feedback information from the encoder,

wherein the processor is adapted to determine whether to change a filter strength of at least one of the filters based on whether a difference between old and new filter strengths ~~are~~is within a range.

38. (Previously Presented) The apparatus of claim 37, further comprising additional audiovideo processing components, at least one transcoder, and a streaming server.

39. (Previously Presented) The apparatus of claim 37 wherein the filters are adapted to be applied to at least one of a selectable frame, block, and macroblock granularity.

40. (Previously Presented) The apparatus of claim 37 wherein the set of criteria include at least one of quantization level, quantization history, motion velocity, changes in scene, number of consecutive frames skipped, and buffer fullness.

41. (Previously Presented) The apparatus of claim 40 wherein the processor is adapted to apply a weighting factor to each of the criteria in the set to adjust its influence over filter strengths of the filters.

42. (Previously Presented) The apparatus of claim 37 wherein the first filter has a strength that can be changed based on an amount of edge information to be filtered from the video frames.

43. (Previously Presented) The apparatus of claim 37 wherein the second filter has a strength that can be changed based on an amount of texture information to be filtered from the video frames.